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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,518	08/18/2003	Rinze Benedictus	APV31645	1585

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EXAMINER

MORILLO, JANELLE COMBS

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 08/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/642,518

Applicant(s)

BENEDICTUS ET AL.

Examiner

Janelle Combs-Morillo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-34 and 37-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-34 and 37-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/25/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Interpretation

1. Independent claim 23 recites an alloy “comprising” various constituents, “balance essentially aluminum and incidental impurities”. The examiner has interpreted said claim to have open claim language, consistent with “comprising” transitional phrase. See MPEP 2111.03.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 23, 26-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heymes (US 6,077,363).

Heymes teaches a process for working an Al-Cu alloy by: semi continuous casting, homogenizing, reheating, hot rolling, natural aging, quenching, controlled stretching between 1.5-3%, age hardening at room temperature to a T351 temper (column 6 lines 5-6), substantially as claimed in instant claims 23, 27, and 29. Heymes teaches said method produces an alloy with high toughness, strength, and good fatigue properties (see Tables 1 and 2). Though Heymes does not specify semi-continuous casting method is DC casting, DC casting is a conventional and well known method of semi-continuous casting. It is within the scope of Heymes to semi-continuous cast by DC casting.

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Said Al-Cu alloy contains 3.5-5.0% Cu, 1.0-2.0% Mg, <0.25% Si, <0.25% Fe, <0.55% Mn, balance aluminum (abstract), which overlaps the alloying ranges in instant claims 23, 35-45, 50-51. The instant range of Zn, Ti, and Ni (claim 45), is within the expected impurity amounts of said elements (see Heymes at Ex. 2, Ex. 3, etc.). Concerning the overlap in alloying ranges, it would have been obvious to one of ordinary skill in the art to select any portion of the range, including the claimed range, from the broader range disclosed in the prior art, because the prior art finds that said composition in the entire disclosed range has a suitable utility. Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP § 2144.05. Because Heymes teaches a substantially similar method of casting, heat treating, working, and aging to a T351 temper, wherein said method is performed on an overlapping Al-Cu alloy composition, then it is held that Heymes has created a prima facie case of obviousness of the presently claimed invention.

Concerning claims 26 and 28, which mention naturally aging for a certain period of days, the examiner submits that aging is a result effective variable, wherein the expected result is degree of precipitation hardening. Changes in temperature, concentrations, or other process conditions of an old process does not impart patentability unless the recited ranges are critical, i.e. they produce a new and unexpected result. However, said parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977), See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

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Concerning claims 30-31, Heymes teaches said alloy can be made into heavy >20mm (column 4 lines 66-67) thick or average 3-12mm thick sheet (column 1 lines 5-6), which overlaps the presently claimed ranges.

Concerning claim 32-33, Heymes teaches said alloy can be processed into a sheet for aircraft fuselages (column 2 line 47).

Concerning instant claim 34, it would have been obvious to one of ordinary skill in the art to use said alloy as an aircraft wing member, substantially as presently claimed, because Heymes teaches said Al-Cu alloy has excellent strength and toughness properties and can be used in aircraft construction (column 1 lines 15-16).

Concerning property claims 48 and 49, Heymes teaches a UTS typically 470 MPa and YS of typically 350 MPa in the examples of Table 1, which fall well within the instant minimum strength values.

Concerning claims 46 and 47, Heymes does not mention the fatigue crack growth rate. However, Heymes teaches said alloy exhibits excellent fatigue resistance (column 2 line 56). Additionally, Heymes teaches a substantially similar method of processing a substantially overlapping alloy composition. The examiner asserts that where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Because Heymes teaches

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substantially similar processing steps performed on an alloy that falls within the instant alloying ranges, it is held that the same properties (such as fatigue crack growth rate) would be expected to be present.

4. Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heymes in view of Colvin (US 5,213,639).

Heymes is discussed in paragraphs above.

Heymes does not mention annealing or reheating the hot rolled ingot and further hot rolling. However, Colvin teaches hot rolling substantially similar Al-Cu-Mg alloys in 2 stages with a reheat in-between said stages (column 6 lines 47-48) is advantageous to improve fatigue crack growth resistance and fracture toughness (column 5 lines 47-49). It would have been obvious to one of ordinary skill in the art to hot roll during the process taught by Heymes, in 2 stages with a reheat in-between said stages, as taught by Colvin, because Colvin teaches said reheat is advantageous to improve fatigue crack growth resistance and fracture toughness (column 5 lines 47-49).

Double Patenting

5. The ODP rejection in view of claims 32-37 of copending Application No. 10/642507 has been withdrawn, because said claims are no longer pending.

Response to Amendment/Arguments

6. In the response filed on May 25, 2005 applicant amended claim 23, and added new claims 50 and 51. The examiner agrees that no new matter has been added.

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7. The examiner agrees that the claim objections have been overcome.

8. Applicant's argument that the present invention is allowable over the prior art of record because applicant has shown that the instant range of Mn and Si leads to improved toughness, strength, and fatigue crack growth resistance, which is not taught or suggested by the prior art has not been found persuasive because Applicant has not provided a clear nexus between the unexpected results and the prior art of record (see MPEP 2144.08). Applicant should establish a nexus between the rebuttal evidence and the claimed invention, i.e., objective evidence of nonobviousness must be attributable to the claimed invention. More specifically, applicant compares the instant invention to AA2024 and AA2524, however, it is not clear that 2024 or 2524 are the closest prior art. Evidence of unexpected properties may be in the form of a direct or indirect comparison of the claimed invention with the closest prior art which is commensurate in scope with the claims. See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) and MPEP §716.02(b), (d), (e). Applicants may compare the claimed invention with prior art that is more closely related to the invention than the prior art relied upon by the examiner, MPEP §716.02(e). *In re Holladay*, 584 F.2d 384, 199 USPQ 516 (CCPA 1978); *Ex parte Humber*, 217 USPQ 265 (Bd. App. 1961). Applicant has not provided evidence or arguments that 2024 or 2524 is closer prior art than the prior art of record.

9. Applicant's argument that the Mn-2Fe proviso of Heymes is likely to be outside the range taught by Heymes has not been found persuasive. Heymes teaches an alloy that substantially overlaps the instantly claimed alloy, including the Fe and Mn ranges. The presently claimed invention does not exclude the range or condition of Mn taught by Heymes.

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10. Concerning the argument that Colvin teaches a range of 0.3-0.9% Mn which teaches against having Mn present only as an incidental element, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Colvin is relied on by the examiner to teach hot rolling substantially similar Al-Cu-Mg alloys in 2 stages with a reheat in-between said stages is advantageous to improve fatigue crack growth resistance and fracture toughness (as opposed to the Mn range). Additionally, a range of 0.3-0.9% Mn is not excluded by the presently claimed open type claim language (see claim interpretation section above).

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,


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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JCM 
August 1, 2005


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